Engineering Interpretations

Building Site Development

Soil properties influence development of building sites, including the selection of the site, the design of the structure, construction, post construction performance, and maintenance. Soil limitation ratings of slight, moderate, and severe are given for shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns, landscaping, and golf fairways.

Shallow Excavations

Shallow excavations are trenches or holes dug in the soil to a maximum depth of 5 or 6 feet. They are used for pipelines, sewer lines, telephone and power transmission lines, basements, open ditches, and cemeteries. The ratings are based on the soil properties that influence ease of digging and resistance to sloughing.

Dwellings With or Without Basements

These are single-family houses of three stories or less. The foundation is assumed to be spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or the depth of maximum frost penetration, whichever is deeper, for houses without basements, or at a depth of 7 feet if a basement is constructed. The ratings are based on properties affecting soil strength and settlement under a load, and those that affect excavation and construction costs.

Small Commercial Buildings

Limitation ratings are given for the undisturbed soil on which small commercial buildings of less than three stories without basements are built. The foundation is assumed to be placed on spread footings of reinforced concrete at a depth of 2 feet or the depth of maximum frost penetration, whichever is deeper.

Local Roads and Streets

Limitation ratings are given for the use of soils for construction of improved local roads and streets that have all-weather surfacing, commonly of asphalt, gravel with binder in it, or concrete, and that are expected to carry automobile traffic all year. These roads and streets are graded to shed water, and conventional drainage measures are provided. With the probable exception of the hard surface, roads and streets are built mainly from the soil at hand.

Lawns, Landscaping, and Golf Fairways

The soils are rated for their use in establishing and maintaining turf for lawns and golf fairways and ornamental trees and shrubs for residential type landscaping. The ratings are based on the use of soil material at the location with some land smoothing. Irrigation may or may not be needed and is not a criterion in rating. Traps, trees, roughs, and greens are not considered as part of the golf fairway. The properties considered are those listed that affect plant growth and trafficability after vegetation is established.

This subsection includes:

• (a) Building Site Development

Building Site Development

Map symbol and soil name	 Dwellings without basements 		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
6B: Sharpsburg	 Moderately limited ~shrink-swell (moderately limited)	0.45	 Moderately limited ~shrink-swell (moderately limited) 	0.45	 Moderately limited ~shrink-swell (moderately limited) ~slope (slightly limited)	0.45	 Moderately limited ~shrink-swell (moderately limited) 	0.45	 Moderately limited ~too clayey (moderately limited)	0.60
10C2:										
Lagonda	Moderately limited -wetness (moderately limited) -shrink-swell (moderately limited) -slope (slightly limited)	0.45	Very limited -wetness (very limited) -shrink-swell (limited) -slope (slightly limited)	 1.00 0.96 0.15	Limited ~slope (limited) ~shrink-swell (moderately limited) ~wetness (slightly limited)	 0.83 0.45 0.13	Moderately limited ~shrink-swell (moderately limited) ~wetness (slightly limited)	 0.45 0.13 	Moderately limited ~too clayey (moderately limited) ~wetness (slightly limited)	0.30
11B:		 						 		
Grundy	Very limited ~shrink-swell (very limited) ~wetness (moderately limited) 	 1.00 0.59 	Very limited ~shrink-swell (very limited) ~wetness (very limited)	 1.00 1.00 	Very limited ~shrink-swell (very limited) ~wetness (slightly limited) ~slope (slightly limited)	 1.00 0.28 0.15	Very limited ~shrink-swell (very limited) ~wetness (slightly limited) 	 1.00 0.28 	Slightly limited ~wetness (slightly limited) 	0.28
11C:		 						 		
Grundy	Very limited ~shrink-swell (very limited) ~wetness (moderately limited) ~slope (slightly limited)	 1.00 0.59 0.15	Very limited -shrink-swell (very limited) -wetness (very limited) -slope (slightly limited)	 1.00 1.00 0.15	Very limited ~shrink-swell (very limited) ~slope (limited) ~wetness (slightly limited)	 1.00 0.83 0.28	Very limited ~shrink-swell (very limited) ~wetness (slightly limited)	 1.00 0.28 	Slightly limited ~wetness (slightly limited)	0.28

Building Site Development

Map symbol and soil name	Dwellings without basements		Dwellings with baser	ments	Small commercial buil	ldings	Local roads and st	reets	Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12B2: Grundy	 Very limited ~shrink-swell (very limited) ~wetness (moderately limited)	1.00	Very limited ~shrink-swell (very limited) ~wetness (very limited)	1.00	 Very limited ~shrink-swell (very limited) ~wetness (slightly limited) ~slope (slightly limited)	1.00	 very limited ~shrink-swell (very limited) ~wetness (slightly limited)	1.00	 Moderately limited ~too clayey (moderately limited) ~wetness (slightly limited)	0.60
12C2: Grundy	Very limited ~shrink-swell (very limited) ~wetness (moderately limited) ~slope (slightly limited)	1.00 0.59 0.15	Very limited ~shrink-swell (very limited) ~wetness (very limited) ~slope (slightly limited)	1.00	 Very limited ~shrink-swell (very limited) ~slope (limited) ~wetness (slightly limited)	1.00	 Very limited ~shrink-swell (very limited) ~wetness (slightly limited)	1.00	 Moderately limited ~too clayey (moderately limited) ~wetness (slightly limited)	 0.60 0.28
13C2: Clarinda	Very limited ~shrink-swell (very limited) ~wetness (moderately limited) ~slope (slightly limited)	1.00 0.59 0.15	Very limited -shrink-swell (very limited) -wetness (very limited) -slope (slightly limited)	1.00	 Very limited ~shrink-swell (very limited) ~slope (limited) ~wetness (slightly limited)	1.00	 Very limited ~shrink-swell (very limited) ~wetness (slightly limited)	1.00	 Moderately limited ~too clayey (moderately limited) ~wetness (slightly limited)	 0.60 0.28
14C: Lamoni	Very limited ~shrink-swell (very limited) ~wetness (moderately limited) ~slope (slightly limited)	 1.00 0.59 0.15	Very limited -shrink-swell (very limited) -wetness (very limited) -slope (slightly limited)	1.00	 Very limited ~shrink-swell (very limited) ~slope (limited) ~wetness (slightly limited)	1.00	 very limited ~shrink-swell (very limited) ~wetness (slightly limited)	1.00	 Slightly limited ~wetness (slightly limited) 	 0.28

Building Site Development

Map symbol and soil name	Dwellings without basements		Dwellings with basements		 Small commercial buildings 		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15C2: Lamoni	<pre> ~shrink-swell (very limited) ~wetness (moderately limited)</pre>	 1.00 0.59 0.15	 Very limited ~shrink-swell (very limited) ~wetness (very limited) ~slope (slightly limited)	 1.00 1.00 0.15	 Very limited ~shrink-swell (very limited) ~slope (limited) ~wetness (slightly limited)	 1.00 0.83 0.28	 Very limited ~shrink-swell (very limited) ~wetness (slightly limited)	 1.00 0.28	 Moderately limited ~too clayey (moderately limited) ~wetness (slightly limited)	0.60
16D: Shelby	Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.76 0.45	 Limited ~slope (limited) ~shrink-swell (moderately limited)	0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.63 0.45	 Limited ~slope (limited) 	0.63
16E: Shelby	· -	 1.00 0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45 	 Very limited ~slope (very limited)	1.00
17D2: Shelby	 Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.76 0.45	Limited ~slope (limited) ~shrink-swell (moderately limited)	0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.63 0.45	 Limited ~slope (limited) ~too clayey (moderately limited)	0.63
17E2: Shelby		1.00 0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Very limited ~slope (very limited) ~too clayey (moderately limited)	1.00

Building Site Development

Map symbol and soil name	 Dwellings without base	ements	 Dwellings with basements 		 Small commercial buildings 		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19C: Ladoga	 	0.45	 Moderately limited ~shrink-swell (moderately limited) ~slope (slightly limited)	0.45	 Limited ~slope (limited) ~shrink-swell (moderately limited)	0.83	 Moderately limited ~shrink-swell (moderately limited)	0.45	 Not limited 	
20C2: Ladoga	 - Moderately limited ~shrink-swell (moderately limited) ~slope (slightly limited)	 0.45 0.15	 Moderately limited ~shrink-swell (moderately limited) ~slope (slightly limited)	 0.45 0.15	(limited)	 0.83 0.45	 Moderately limited ~shrink-swell (moderately limited)	 0.45 	 Moderately limited ~too clayey (moderately limited)	 0.60
21D: Gara	 Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.76 0.45	 Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.76 0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00	 Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.63 0.45	 Limited ~slope (limited)	 0.63
21E: Gara	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Very limited ~slope (very limited)	 1.00
22D2: Gara	Limited -slope (limited) -shrink-swell (moderately limited)	 0.76 0.45	 Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.76 0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.63 0.45	 Limited ~slope (limited) ~too clayey (moderately limited)	 0.63 0.60

Building Site Development

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
22E2: Gara	1 - 2	1.00	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Very limited ~slope (very limited) ~too clayey (moderately limited)	 1.00 0.60
23C: Armstrong	 - Very limited ~shrink-swell (very limited) ~wetness (moderately limited) ~slope (slightly limited)	 1.00 0.59 0.15	 Very limited ~wetness (very limited) ~shrink-swell (limited) ~slope (slightly limited)	 1.00 0.99 0.15	Very limited ~shrink-swell (very limited) ~slope (limited) ~wetness (slightly limited)	1.00	 Very limited ~shrink-swell (very limited) ~wetness (slightly limited)	 1.00 0.28	 Slightly limited ~wetness (slightly limited)	 0.28
24C2: Armstrong	Very limited -shrink-swell (very limited) -wetness (moderately limited) -slope (slightly limited)	 1.00 0.59 0.15	 Very limited ~wetness (very limited) ~shrink-swell (very limited) ~slope (slightly limited)	 1.00 1.00 0.15	 Very limited ~shrink-swell (very limited) ~slope (limited) ~wetness (slightly limited)	 1.00 0.83 0.28	 Very limited ~shrink-swell (very limited) ~wetness (slightly limited)	 1.00 0.28 	 Moderately limited ~too clayey (moderately limited) ~wetness (slightly limited)	 0.60 0.28
25B: Pershing		 1.00 0.29	 Very limited ~shrink-swell (very limited) ~wetness (limited)	 1.00 0.95	 Very limited ~shrink-swell (very limited) ~slope (slightly limited)	 1.00 0.15	 Very limited ~shrink-swell (very limited) 	 1.00 	 Not limited 	

Building Site Development

Map symbol and soil name	Dwellings without basements		 Dwellings with basem 	nents	 Small commercial build 	dings	Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value 	Rating class and limiting features	Value 	Rating class and limiting features	Value 	Rating class and limiting features	Value
26C2: Pershing	Very limited ~shrink-swell (very limited) ~wetness (slightly limited) ~slope (slightly limited)	 1.00 0.29 0.15	 very limited ~shrink-swell (very limited) ~wetness (limited) ~slope (slightly limited)	 1.00 0.95 0.15	 Very limited ~shrink-swell (very limited) ~slope (limited)	1.00	 Very limited ~shrink-swell (very limited)	1.00	 Moderately limited ~too clayey (moderately limited)	0.60
33E: Vanmeter	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00	 very limited ~slope (very limited) ~shrink-swell (limited)	1.00	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 very limited ~slope (very limited) ~large stones (moderately limited)	 1.00 0.39
44: Bremer	Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (limited)	 1.00 1.00 0.99	Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (very limited)	1.00	 Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (limited)	 1.00 1.00 0.60	 Very limited ~shrink-swell (very limited) ~flooding (rare) (limited) ~wetness (limited)	 1.00 0.90 0.60	Limited ~wetness (limited)	 0.60
45: Humeston	Very limited -wetness (very limited) -flooding (very limited) -shrink-swell (very limited)	1.00	 Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (very limited)	1.00	 Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (very limited)	 1.00 1.00 1.00 1.00	 Very limited ~wetness (very limited) ~shrink-swell (very limited) ~flooding (rare) (limited)	 1.00 1.00 0.90	 Very limited ~wetness (very limited)	1.00

Building Site Development

Map symbol and soil name	 Dwellings without basements 		Dwellings with basements		Small commercial build	dings	Local roads and stre	eets	Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value 	Rating class and limiting features	Value	Rating class and limiting features	Value 	Rating class and limiting features	Value
46: Arbela		 1.00 0.45	 Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (slightly limited)	 1.00 1.00 0.25	 Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (moderately limited)	 1.00 1.00 0.45	 Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (moderately limited)	 1.00 1.00 0.45	 Very limited ~wetness (very limited) ~flooding (moderately limited)	 1.00 0.60
51: Kennebec	Very limited ~flooding (very limited) ~shrink-swell (moderately limited) ~wetness (slightly limited)	 1.00 0.45 0.01	Very limited -flooding (very limited) -wetness (limited) -shrink-swell (moderately limited)	 1.00 0.61 0.45	 Very limited ~flooding (very limited) ~shrink-swell (moderately limited)	 1.00 0.45 	 Very limited ~flooding (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Moderately limited ~flooding (moderately limited)	 0.60
52B: Olmitz	 Moderately limited ~shrink-swell (moderately limited)	 0.45 	 Moderately limited ~shrink-swell (moderately limited)	 0.45 	 Moderately limited ~shrink-swell (moderately limited) ~slope (slightly limited)	 0.45 0.15	 Moderately limited ~shrink-swell (moderately limited) 	 0.45 	 Not limited 	
54: Zook	Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (moderately limited)	 1.00 1.00 0.59	Very limited -flooding (very limited) -shrink-swell (very limited) -wetness (very limited)	 1.00 1.00 1.00	 Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (slightly limited)	 1.00 1.00 0.28	 Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (slightly limited)	 1.00 1.00 0.28	 Moderately limited ~flooding (moderately limited) ~too clayey (moderately limited) ~wetness (slightly limited)	0.60

Building Site Development

Map symbol and soil name	Dwellings without basements		Dwellings with basem	ents	 Small commercial build 	dings	 Local roads and str 	eets	Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
55: Colo	<pre> ~flooding (very limited) ~shrink-swell (very limited)</pre>	 1.00 1.00 0.59	 Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (very limited)		 Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (slightly limited)	 1.00 1.00 0.28	 Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (slightly limited)	 1.00 1.00 0.28	 Moderately limited ~flooding (moderately limited) ~too clayey (moderately limited) ~wetness (slightly limited)	0.30
56: Nevin	~flooding (very limited)	0.45	 Very limited ~flooding (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	 0.95 0.45	 Very limited ~flooding (very limited) ~shrink-swell (moderately limited)	0.45	 Limited ~flooding (rare) (limited) ~shrink-swell (moderately limited)	 0.90 0.45	 Not limited 	
57A: Colo	1 - 2	 1.00 0.59	 Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (very limited)	İ	 Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (slightly limited)	 1.00 1.00 0.28	 Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (slightly limited)	ĺ	 Very limited ~flooding (very limited) ~too clayey (moderately limited) ~wetness (slightly limited)	 1.00 0.30 0.28
58: Wabash	<pre>~wetness (very limited) ~shrink-swell (very limited)</pre>	 1.00 1.00 1.00 1.00	 Very limited ~shrink-swell (very limited) ~flooding (very limited) ~wetness (very limited)	 1.00 	 Very limited ~flooding (very limited) ~shrink-swell (very limited) ~wetness (very limited)	 1.00 1.00 1.00 1.00	 Very limited ~wetness (very limited) ~shrink-swell (very limited) ~flooding (very limited)	 1.00 	 Very limited ~wetness (very limited) ~too clayey (very limited) ~flooding (moderately limited)	 1.00 1.00 0.60

Building Site Development

Map symbol and soil name	Dwellings without basements		 Dwellings with basem 	ents	 Small commercial buil 	dings	 Local roads and str 	eets	Lawns and landscaping	
	Rating class and limiting features	Value 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value 	Rating class and limiting features	Value
66: Nodaway	- Very limited - flooding (very limited)	 1.00 0.45 0.01	 Very limited ~flooding (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	0.61	 Very limited ~flooding (very limited) ~shrink-swell (moderately limited)	 1.00 0.45 	 Very limited ~flooding (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	 Moderately limited ~flooding (moderately limited)	0.60
88: Pits	- Not rated	 	 Not rated 		 Not rated 	 	 Not rated 	 	 Not rated 	
M-W: Water	- Not rated	 	 Not rated 		 Not rated 		 Not rated 		 Not rated 	
W: Water	- Not rated	 	 Not rated 		 Not rated 		 Not rated 		 Not rated 	